

**REMARKS**

Claims 1-31 were examined. All claims were rejected. In response to the above-identified Office Action, Applicants amend claims 1 and 24, but do not cancel any claims. Reconsideration of the rejected claims in light of the aforementioned amendments and the following remarks is requested.

I. Claim Objections

The Examiner has objected to claim 1 because on line 2, a preposition appears to be missing between the words “plurality” and “requests”. Applicants have amended claim 1 to correct this informality.

II. Claims Rejected Under 35 U.S.C. § 102(b)

The Examiner rejected claims 1, 2, 8, 16, 23, 24 and 30 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,055,604 issued to Voigt *et al.* (“Voigt”). However, Applicants believe Voigt fails to disclose “each and every element of the claimed invention, arranged as in the claim.” *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1458 (Fed. Cir. 1984). Consequently, Voigt does not anticipate the present invention, and the rejections should be withdrawn.

Specifically, claim 1 recites a method comprising maintaining a log of a plurality of requests in a storage server, *each of the requests corresponding to a write operation to be performed by the storage server* on a set of storage devices. Voigt maintains a log of “mapping information” (*see c. 1, l. 35-38*), which is later explained to be information to relate various views of different storage spaces of a hierarchic disk array (*see c. 3, ll. 55-64*). The “mapping information” is also described as “memory map log records [, which] are maintained and constantly posted from memory to disk by [a] RAID management system” (*see c. 4, ll. 44-48*). Voigt discusses write operations at several points, but these are write

operations performed to copy the memory map log records to disk. The log records themselves correspond to the mapping of, “[f]or example, the physical storage space of the disk array [...] into a virtual storage space” (*see* c. 3, ll. 61-63).

Since *Voigt*’s log records do not each correspond to a write operation to be performed by the storage server, as in claim 1, Applicants submit that the reference fails to disclose each and every element of the invention. The Examiner is respectfully requested to withdraw the rejection of claim 1.

Claim 2 depends on claim 1, and is believed to be patentable for at least the reasons discussed above in support of that base claim. Applicants ask the Examiner to withdraw this rejection also.

Claim 8 is believed to be patentable by virtue of its dependence upon claim 1, but it is also independently distinguishable from *Voigt*. Claim 8 refines the method of claim 1, requiring the maintenance of an entry count in the log to indicate the number of log entries in the log, and the use of the checksum of one of the log entries to determine whether the entry count is corrupted. *Voigt* does not maintain an entry count in the log to indicate the number of log entries. Instead, each of *Voigt*’s log entries includes a sequence number (Fig. 7, element 120) which is “a generated number that is sequentially incremented for each new record added to the transaction log” (*see* c. 8, ll. 28-30). The sequence number is different from an entry count, and although a number of entries (arguably, an “entry count”) might be calculated as the difference between two sequence numbers, such a number bears no necessary connection to the number of entries in the log because *Voigt* does not track the sequence number of the lowest-numbered entry in the log.

The same conclusion can be reached through a second line of reasoning as well. In the reference at c. 9, ll. 1-27, the process of recovering the log from entries stored on disk is described. First, all “full” log pages are restored (c. 9, ll. 4-7), then non-full pages are scanned repeatedly to find a “force” written log

entry in the disk staging log with a sequence number following the highest-numbered already restored. This process ends when no higher-numbered log entry with a correct checksum and disk set data can be found. *Voigt's* method cannot say how many log entries will (or should) be found because it does not maintain a count. This is significant because there is no way to check the number of entries found against the number expected. If, for example, *Voigt's* disk staging log contained five entries, but the third was corrupted, the log restoration would stop after the second entry because the third did not appear to be valid. The fourth and fifth entries would be silently ignored, because the count of entries was unknown. Since no count is maintained, it is impossible to use the checksum of a log entry to determine whether the count is corrupted, as claim 8 requires. For at least these reasons, Applicants respectfully request that the Examiner withdraw the rejection of this claim.

Claim 16 (which is not amended in this Response) stands rejected over *Voigt* "using the same rationale as applied to claims 1, 2 and 8." However, claim 16 recites additional and different details of the log that is to be maintained by the processor of a network storage appliance, including that the log maintained in non-volatile memory contain requests for which corresponding data has not yet been saved to the set of mass storage devices, each of the log entries representing a separate request. As discussed above, *Voigt's* log entries correspond to memory map changes, not requests for which corresponding data has not yet been saved. Therefore, *Voigt* fails to anticipate claim 16. Applicants respectfully request that this rejection be withdrawn.

Claim 23 depends upon claim 16, and is believed to be patentable for at least the reasons discussed above in support of that base claim; also, it includes entry count and checksum-based corruption determination similar to that discussed in reference to claim 8. For at least these two reasons, Applicants ask the Examiner to withdraw this rejection as well.

Claim 24 recites a storage server comprising several elements for dealing with requests from a set of client devices, each request corresponding to a write operation to be performed by the storage server, and maintaining a log of the requests. There is a separate log entry for each of the write requests, and these log entries are different than *Voigt*'s (as discussed above). Consequently, Applicants respectfully request that the Examiner withdraw the rejection of claim 24.

Claim 30, depends on claim 24, so it is patentable for at least the reasons discussed. Also, like claims 8 and 23, claim 30 requires means for maintaining an entry count in the log to indicate the number of log entries in the log, and means for using the checksum of one of the log entries to determine whether the entry count is corrupted. Therefore, claim 30 is also believed to be patentable over the reference of record, even assuming (solely for the sake of argument) that the rejection of its base claim was well-supported.

III. Claims Rejected Under 35 U.S.C. § 103(a)

The Examiner rejected claims 3-15, 17-22 and 25-29 under 35 U.S.C. § 103(a) as unpatentable over *Voigt* in view of U.S. Patent No. 6,880,149 issued to Cronce ("*Cronce*"). The secondary reference is relied upon only for its alleged teaching of limitations related to checksum selection and operation as recited in some of these claims. Applicants have carefully reviewed the cited portions of *Cronce*, and the reference more generally, but even assuming (solely for the sake of argument) that it teaches or suggests what the Examiner asserts, and that an anti-piracy technology for detecting software code modifications could properly be combined with *Voigt*'s efficient method for storing a fileserver transaction log, the references still lack the points discussed in the preceding sections.

Consequently, claims 3-7 (which depend directly or indirectly upon claim 1), 10-14 (claim 9); claims 17-22 (claim 16); and 25-28 (claim 24) are believed to be patentable for at least the reasons cited in support of their base claims.

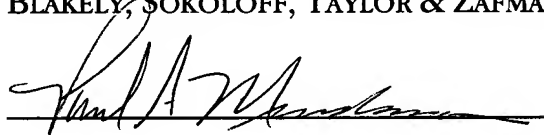
Claims 8 seems to have been included in the Examiner's list of claims rejected under § 103(a) inadvertently, since it receives no further discussion in this section. Similarly, claims 15 and 29 are only mentioned as rejected "using the same rationale," so no separate § 103(a) analysis seems to apply. Applicants respectfully request that the Examiner withdraw the rejections of claims 3-15, 17-22 and 25-29.

The Examiner rejected claim 31 under 35 U.S.C. § 103(a) as unpatentable over *Voigt* for notorious obviousness. However, regardless of the obviousness (or not) of providing network access to a storage server, claim 31 depends upon claim 24 and is believed to be patentable to the same extent as that base claim. Applicants respectfully request that the Examiner withdraw this rejection also.

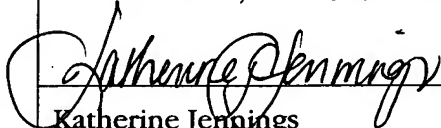
CONCLUSION

In view of the foregoing, it is believed that all claims now pending, namely claims 1-7, 9-14, 16-22, 24-29 and 39, patentably define the subject invention over the prior art of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. As mentioned above, Applicants would appreciate an opportunity to discuss the application by telephone after the Examiner has reviewed this Response, and before a subsequent Office Action is prepared. **The Examiner is respectfully requested to contact the undersigned at (503)439-8778, extension 253, to schedule an interview at a convenient time.**

Dated: July 12, 2006 Respectfully submitted,
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12400 Wilshire Boulevard Seventh Floor Los Angeles, California 90025 (503) 439-8778	<p style="text-align: center;"><u>CERTIFICATE OF MAILING</u></p> <p>I hereby certify that the correspondence is being deposited with the United States Postal Service with sufficient postage for first class mail, in an envelope addressed to:</p> <p style="text-align: center;">Mail Stop Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450</p> <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="text-align: center;">  Katherine Jennings </div> <div style="text-align: right;"> 7-12-06 Date </div> </div>
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